

## Food, Stress, and Mating: Tall Choices in the Life of a Small Damselfish

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Thursday, November 6, 12:00-1:00

Simple optimality processes and decisions can lead to complex temporal variability and variability among individuals. We pursued this question in relation to coral reef fish settlement decisions and their implications on social group dynamics. We first developed a model of optimal “choice” that predicted that settling *Dascyllus albisella* should show no preference for particular group sizes early in the season, but favor smaller groups later to maximize growth. Our field data on revealed that individuals preferred settling in larger groups where safe but sometimes relocated to other social groups. Our assumptions of a cost to settling fish and of no post-settlement movement did not hold. We then used demographic data on the juvenile social groups of one such species (*Dascyllus albisella*), to test the hypothesis that juveniles can monitor their condition (i.e., stress and growth) within their social environment and move to other social groups, if necessary, to search for a more favorable group makeup. We calculated the probability that an individual would disappear from its social group and the probability that a social group would receive an individual of a given size class as a function of sampling period, group size, and the numbers of individuals within four size classes of juveniles, using logistic regressions. To determine which factors were important, we performed an Akaike Information Criteria analysis of the logistic regressions. Small and medium juveniles were more likely to disappear from small and, to some extent, large social groups. However, they were more likely to move to social groups with an intermediate number of juveniles from the next size class. Although large individuals readily disappeared from their social groups, the relationship to any of the factors was confounded by the fact that *D. albisella* individuals are known to leave the juvenile social groups upon reaching maturity. We also found that previously settled individuals, rather than new settlers, were most likely to form new social groups on the reef.